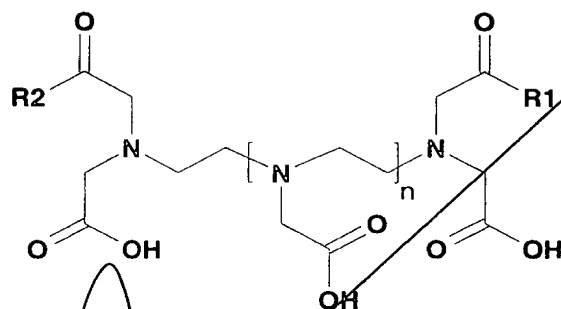


We claim:

1. A compound of Formula I:

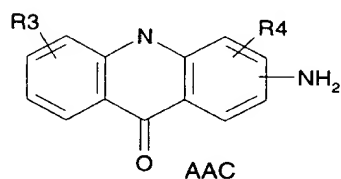
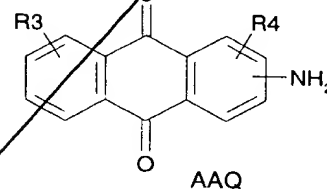
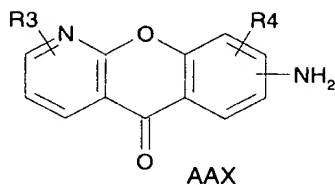
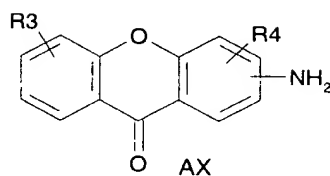
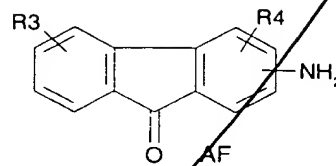
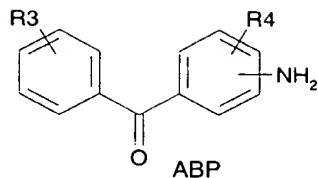
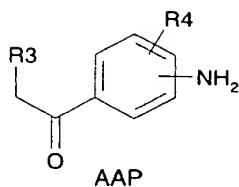


[N $\Lambda$ ]<sub>n</sub> is a chelator selected from the group consisting of: DTPA (n= 1), (TTHA) (n=2), and a polycarboxylate derivative of DTPA or TTHA, which chelates a lanthanide metal cation;

R1 is selected from the group consisting of: phenones and quinolines; and

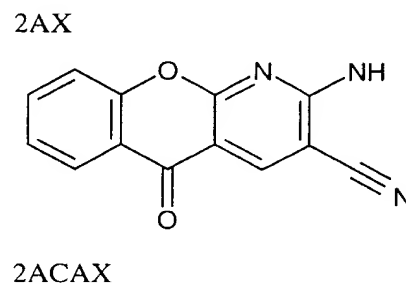
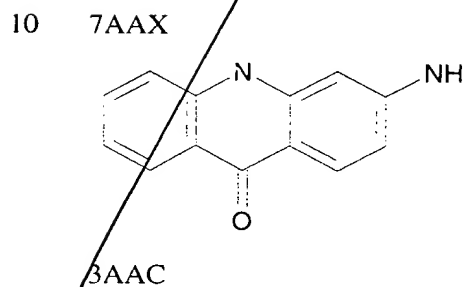
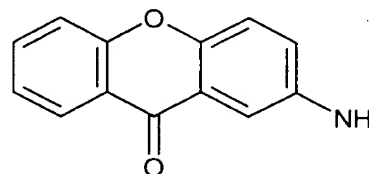
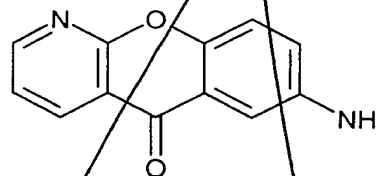
R2 is selected from the group consisting of: OH, NH(CH<sub>2</sub>)<sub>n</sub>OH, NH(CH<sub>2</sub>)<sub>n</sub>NH<sub>2</sub>, NH(CH<sub>2</sub>)<sub>n</sub>PhNH<sub>2</sub>, NH(CH<sub>2</sub>)<sub>n</sub>PhOH, NHCH(CO<sub>2</sub>H)CH<sub>2</sub>PhNH<sub>2</sub>, NH(CH<sub>2</sub>)<sub>n</sub>PhNCS; wherein n is 1-6.

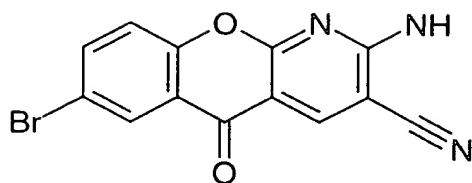
2. A compound according to Claim 1 wherein R1 is selected from the following group: aminoacetophenones (AAP), aminobenzophenones (ABP), aminofluorenones (AF), aminoxantones (AX), amino-azaxanthones (AAX), aminoanthraquinones (AAQ), aminoacridones (AAC), and aminoquinolines (AQ):



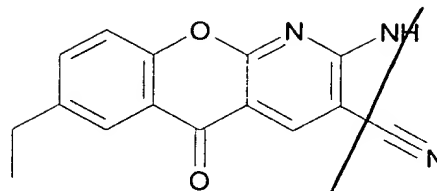
wherein R3 and R4 are independently selected from the group consisting of: H, OH, NH<sub>2</sub>, COCH<sub>3</sub>, CPh, OPh, NPh, CN, NO<sub>2</sub>, CO<sub>2</sub>H, and CO<sub>2</sub>CH<sub>3</sub>.

- 5 3. A compound according to Claim 1 wherein R1 is selected from the following group:



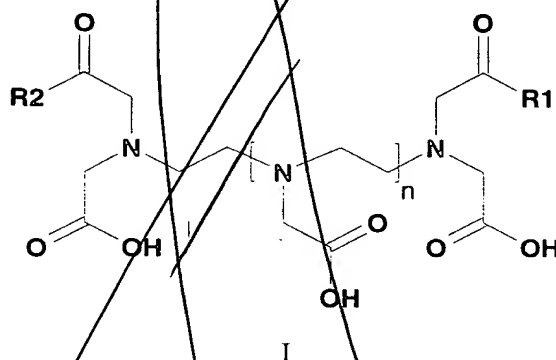


2ACBAX



2ACEAX

4. A compound according to Claim 1 wherein  $[\text{N}/\text{N}]_n$  is DTPA ( $n=1$ ).
5. A compound according to Claim 1 wherein the lanthanide metal cation is selected from the group consisting of: Tb III, Eu III, Sm III, and Dy III.
6. A compound according to Claim 5 wherein the lanthanide metal cation is selected from the group consisting of: Eu III or Tb III.
7. A method for using a compound of Formula I:



I

wherein:

$[\text{N}/\text{N}]_n$  is a chelator selected from the group consisting of: DTPA ( $n=1$ ), (TTHA) ( $n=2$ ), and a polycarboxylate derivative of DTPA or TTHA, which chelates a lanthanide metal cation;

R1 is selected from the group consisting of: phenones and quinolines; and  
 R2 is selected from the group consisting of: OH,  $\text{NH}(\text{CH}_2)_n\text{OH}$ ,  $\text{NH}(\text{CH}_2)_n\text{NH}_2$ ,  $\text{NH}(\text{CH}_2)_n\text{PhNH}_2$ ,  $\text{NH}(\text{CH}_2)_n\text{PhOH}$ ,  $\text{NHCH}(\text{CO}_2\text{H})\text{CH}_2\text{PhNH}_2$ ,  $\text{NH}(\text{CH}_2)_n\text{PhNCS}$ ;  
 wherein  $n$  is 1-6;

in fluorescence detection-based techniques or bioassays comprising the steps of:

- 5 a. labelling an aliquot comprising donor biomolecules selected from the group consisting of: peptides, proteins, deoxyribonucleic acids (DNAs), ribonucleic acids (RNAs), enzyme substrates, and ligand molecules with a compound of Formula I by a linking reaction with linker R2 to provide a labelled biomolecule assay sample;
- 5 b. adding a suitable amount of a suitable organic dye to the labelled biomolecule assay sample;
- c. exciting the labelled biomolecule assay sample in a suitable fluorescence instrument to provide a fluorescence emission for quantitation.
- 10 8. A method according to Claim 7 wherein said organic dye is selected from the group consisting of but not limited to: rhodamine, allophycocyanin (APC) and indodicarbocyanin (CY-5),
- 15 9. A kit for fluorescence detection-based techniques or bioassays comprising:
- a. a suitable amount of a compound of Formula I; and
- b. a suitable amount of organic dye.
- 20 10. A kit according to Claim 9 wherein said organic dye is selected from the group consisting of but not limited to: rhodamine, allophycocyanin (APC) and indodicarbocyanin (CY-5).

add  
A<sup>1</sup>